

# Claims

1. A method for detecting a dye bolus injected into  
5 the body of a living being, by irradiating optical  
radiation into the body (4) and detecting a  
response radiation occurring on the surface of the  
body, characterized in that a fluorescent dye is  
10 injected, an optical excitation radiation is  
irradiated into the body, and a temporal relation  
between a fluorescent radiation, which is  
triggered by the excitation radiation, and the  
excitation radiation is measured.
- 15 2. The method as claimed in claim 1, characterized in  
that the excitation radiation is emitted as a  
short pulse.
- 20 3. The method as claimed in claim 1 or 2,  
characterized in that a time profile of the  
fluorescent radiation triggered by the excitation  
radiation is determined.
- 25 4. The method as claimed in one of claims 1 through  
3, characterized in that, for detection of the  
fluorescent radiation, the frequency of the  
excitation radiation is blocked off by filtering.
- 30 5. The method as claimed in one of claims 1 through  
4, characterized in that a detection of the  
reflected excitation radiation is carried out  
simultaneously and in parallel.
- 35 6. The method as claimed in claim 5, characterized in  
that the detection of the reflected excitation  
radiation is likewise carried out with time  
resolution.

7. The method as claimed in one of claims 1 through 6, characterized in that the detected fluorescent radiation is evaluated by assessing the distribution of the measured temporal relation.
- 5 8. The method as claimed in claim 7, characterized in that a rise in the distribution is used as an indicator for the start of the dye bolus.
- 10 9. The method as claimed in one of claims 1 through 8, characterized in that the excitation radiation is irradiated into the body (4) at the head in order to examine the brain.
- 15 10. The method as claimed in one of claims 1 through 8, characterized in that the excitation radiation is irradiated into the body (4) in the area of the lungs.
- 20 11. A device for detecting a dye bolus injected into the body (4) of a living being, with an optical radiation source (1) for irradiating an optical radiation into the body (4), and with a detection arrangement (6-16) for detecting a response radiation emanating from the body (4),  
25 characterized in that the optical radiation source (1) is designed to emit an excitation radiation with a first frequency, and the detection arrangement is designed to detect a response  
30 radiation with a second frequency different than the first frequency and to determine a temporal relation between the emitted excitation radiation and at least part of the detected response radiation.
- 35 12. The device as claimed in claim 11, characterized in that the optical radiation source (1) operates in pulsed mode.

13. The device as claimed in claim 11 or 12,  
characterized in that the detection arrangement  
(6-14) is designed to detect a time profile of the  
fluorescent radiation triggered by a pulse of the  
excitation radiation.
14. The device as claimed in one of claims 11 through  
12, characterized in that the detection  
arrangement (6-14) has an optical filter (7) for  
blocking off the excitation radiation.
15. The device as claimed in one of claims 11 through  
14, characterized in that the detection  
arrangement (6-14) has an additional detector  
branch (6'', 8, 10) for detection of reflected  
excitation radiation.
16. The device as claimed in one of claims 11  
through 15, characterized in that the detection  
arrangement (6-14) has an evaluation unit (14) for  
temporal changes of the measured temporal  
relation.